

Innovations in bridging and foundation education in a tertiary institution

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A 2006 survey of programs at Unitec, New Zealand concluded that, in the main, Unitec programs and courses were not meeting student needs in the area of foundation and bridging education. Invoking international research and practice, a report was compiled proposing a number of recommendations to remedy this situation. Academic Board, in accepting recommendations that were based on developing and re-developing foundation and bridging courses and programs to better staircase students into degree programs, and to support first-year students in undergraduate degree programs, has challenged the Unitec community to think in new ways about the needs of students entering the institution.

It was argued in the report that the key determinant in developing these strategies should be the need to provide students with bridging/foundation education that supports them to develop the contextualised discipline knowledge and academic literacies they

need in order to transition to the next level of study as independent, critical learners – as students who know ‘how to learn’. Over the last few months, many exciting and challenging developments have occurred in relation to this initiative. This paper begins by examining the research that informed the recommendations in the report. Initiatives that are proposed or underway are then outlined, and discussed in conjunction with examples of the challenges associated with making this shift in institutional thinking and practice.

[S]tudents are more likely to persist when they find themselves in settings that hold high expectations for their learning, provide needed academic and social support, and actively involve them with other students and faculty in learning. The key concept is that of educational community and the capacity of institutions to establish educational communities that involve all students as equal members. (Tinto 2002b)

Background

In May 2005, a working party to review foundation and bridging education was established by the Academic Board at Unitec with the following terms of reference:

- To review current philosophies of foundation/bridging education, both at Unitec and internationally
- To review current models of foundation/bridging education, both at Unitec and internationally
- To identify the features of successful foundation/bridging programs at Unitec
- To recommend to Academic Board core components and features for all foundation/bridging programs at Unitec
- To consider and provide advice on such other matters relating to foundation education at Unitec as the working party sees fit.

The working party comprised members of academic staff, student services, the learning centre and the library. The author of this paper chaired the working party and co-compiled the report, which was accepted following its presentation to Academic Board in September 2006 (Trewartha & Barrow 2006).

Internationally, and within New Zealand, the terms ‘foundation’ and ‘bridging’ are used to define a variety of educational offerings, depending on the institution and/or country providing them. It was agreed, however, that, at Unitec, ‘foundation education’ would be used to refer to certificate programs with courses at New Zealand Qualification Authority (NZQA) levels 1, 2 or 3, which include courses based on developing literacy and numeracy, designed for students who need considerable preparation to pathway to either a diploma or degree program; and that ‘bridging education’ would refer to: (a) programs incorporating courses with literacy and numeracy learning outcomes, including level 4 certificates, that provide a one- or two-semester staircase to degree programs, and (b) academic study skills courses designed to provide contextualised holistic support to students in their first-year at Unitec to introduce them to the skills and concepts basic to successful tertiary study.

The initiative to review foundation and bridging education at Unitec grew out of discussion around issues arising from the first annual institute-wide report on success and retention (Barrow 2004) and other 2004 reports from working parties investigating English language entry requirements (Blickem 2004) and the academic literacy levels of students (Report of the Project Cherub 2004). The concerns identified by these reports pointed to a need for the institute to address issues related to the increasing number of under-prepared students entering tertiary education. At the same time, there was a growing awareness that international trends in the area of bridging and foundation education were towards a very different model from that currently employed at Unitec.

The aim of the review was to investigate and report on the state of current foundation /bridging education at Unitec and to identify and recommend new models for Unitec based on international trends and practices. Unitec has a number of certificate programs that bridge to diploma or degree programs. However, very few of these programs had been developed on the pedagogical principles that are now internationally recognised as prerequisite to student retention and persistence for non-traditional students. Furthermore, no first-year degree programs had academic study skills courses to support students in their first year of study.

The Unitec Charter states:

At Unitec students learn to reason, adapt, innovate, communicate and grow so they can respond to rapid changes in the workforce and society and can return to study – if the desire or the need is there. (Unitec New Zealand 2003)

If the Charter is indeed a valid reflection of Unitec’s institutional aspirations for its graduates, it is imperative, so the report argued, that the institution as a whole acknowledge that many students will never learn these skills and become lifelong learners unless they are inspired and supported to develop the necessary intellectual understandings.

The report examined the current situation and recommended a number of strategies to improve bridging and foundation education at Unitec. Since the recommendations were accepted by Academic Board, the School of Foundation Studies (SFS), which was charged with providing advice and coordinating the development and re-development of courses and programs, has become involved in projects involving 16 different programs (some within the same discipline).

This paper begins by examining the research that informed the recommendations. Initiatives that are proposed or underway are then outlined and discussed, in conjunction with examples of the

challenges associated with making this shift in institutional thinking and practice. While the report, on which this paper is based, examined structures at only one tertiary institution, its conclusions have implications for all those involved in teaching and developing programs for foundation/bridging/first-year students. Adopting these strategies would, it was suggested in the report, lead not only to enhanced student success and retention – and as a consequence, greater satisfaction for teaching staff. It would also stake for Unitec a unique position in the marketplace as an institution that both graduates students with competency in a particular discipline, and challenges and supports them from day one to develop the academic skills they need, as the Charter states, ‘to engage in critical thinking, and to exercise independent judgement’ (Unitec New Zealand 2003).

Features of successful foundation/bridging programs

Internationally, foundation programs have moved away from deficit models, which concentrated on skills development, to models based on the pedagogical belief that foundation students need to build ‘strategic, institutional and disciplinary confidence’ (Dison & Rule 1996), in courses that are linked to provide integrated and contextual learning ‘emphasised by student-student and faculty-student interaction’ (Tinto 1997). There is now a large body of research pointing to the effectiveness of this model, particularly within the structure of learning communities (Prebble *et al.* 2004).

Similarly, for bridging and first-year students, White (1994: 7) argues that the primary educational imperative for first-year students should be that they are not simply ‘receptors of facts’ but complete the first year knowing ‘*how to learn*’ (emphasis added). In quoting Katz *et al.* (1988) on Perry’s work on intellectual development (1968), White notes that:

At the heart of Perry’s work and that of other observers of student intellectual development is a powerful yet simple

observation: students gain intellectual sophistication when they must confront and assess competing and equally well argued perspectives on an issue or solutions to a problem. (p.7)

While successful foundation/bridging education relies on identifying the attributes deemed desirable to develop students who know how to learn, and who can succeed as critical thinkers and independent learners at the next level of education, it also requires an understanding of the values and structures, at both the institutional and classroom level, needed to facilitate such learning.

A wide-ranging review of the literature identified the following internationally recognised factors as leading to successful foundation/bridging education:

1. Bridging/foundation programs are valued as integral to the institution by all members of staff and centralised structures and finances are in place to support these programs in a centralised manner (Boylan 2002, Boylan, Bliss & Bonham 1997, Kozeracki 2002, Kuh *et al.* 2005, Tinto 1997).
2. Bridging/foundation pedagogy is a feature of these programs. ‘They focus on improving the quality of learning – the process – not just content or outcomes’ (Tinto 1997).
3. Diagnostic assessment and academic advising take place for all new students, leading to placement in courses that value their existing knowledge and provide opportunities for students to build on that knowledge and attain their goals (Boylan 2002, Kozeracki 2002, Malnarich *et al.* 2003, Prebble *et al.* 2004).
4. The cultural capital students bring with them is ‘valued and accommodated’ and the institution is seen as willing to adapt its practices to affirm students’ differing cultural needs (Zepke *et al.* 2005: 14).
5. Courses in programs are integrated – usually into learning communities – and, where necessary, staff collaborate across

- disciplines to integrate teaching approaches, content and assessment (Dison & Rule 1996, Prebble *et al.* 2004, Tinto 1997).
6. The classroom environment is inclusive and affirming. Students and staff are engaged in working together to produce understandings of the complexities of knowledge. Staff teach in ways that match the needs of different learning styles, difference is validated and students are supported academically, socially and emotionally (Dison & Rule 1996, hooks 1994, Kuh *et al.* 2005, Prebble *et al.* 2004, Tinto 1997).
 7. Course content is contextualised to mirror and build on the experience of the constituent student population (Malnarich *et al.* 2003).
 8. Learning tasks are based around collaborative and problem-based learning and 'skills-based learning is [integrated] with more challenging discipline-specific course content' to introduce students to the academic language and theories of the disciplines they are intending to move on to (Malnarich *et al.* 2003).
 9. Assessment is integrated across courses. Assessment criteria are specific, frequent feedback is provided and there are early opportunities for success (Boylan 2002) – well managed and comprehensive formative assessment is a feature of courses and treated as a learning tool; summative assessment is spread throughout the semester.
 10. The best staff on the program teach the bridging/foundation courses; the institution actively recruits staff who are keen to teach in this area and invests in their development (Boylan 2002, Boylan, Bliss & Bonham 1997).
 11. Student support such as learning support, financial aid and counselling are widely available, are actively promoted and staff are familiar with the services provided (Boylan 2002, Dison & Rule 1996, Kozeracki, 2002).

These have since been condensed into a list of six criteria, which all new and re-developed foundation/bridging courses and programs must meet.

Pedagogically, it would be difficult to deny that the strategies listed here are other than desirable features for all teaching programs, at all levels of study. It is therefore not envisaged that foundation/bridging education should be seen as 'fixing' all the 'problems' students present with in their first year, or that teachers on higher-level programs/courses can relax, believing students do not need this type of support once they move on. In fact, students who experience this mode of teaching, while becoming more capable learners, are also likely to have higher expectations for their future education. Working collaboratively to develop the programs/courses in foundation/bridging education, will, it is hoped, lead to teaching staff embracing this pedagogical philosophy at all levels.

Foundation/bridging education at Unitec

Foundation

In 2006, Unitec had approximately five certificates that could be defined as foundation programs. Made up of at least 40 credits, and usually more, these certificates normally consist of courses between levels 1 and 3 – some EAL (English as an Additional Language) programs are at levels 4 and 5. To be eligible for admission applicants must, generally, only meet the institution's English language requirements for programs at this level, together with either Unitec's general admission or special admission requirements. Apart from the level 3 Certificate in Foundation Studies: Whitinga (CFS:W), which is aimed at providing a pathway for students to diploma and degree programs at Unitec, certificates at levels 1 to 3 are sometimes needed for entry into trades, craft and service occupations, but may also provide entry to diploma and bachelor programs (e.g. Certificate in Animal Management, Certificate in Applied Technology).

As most of these programs did not meet the criteria noted above as a necessary feature of successful foundation programs, it was recommended that these programs be re-developed to meet the

criteria and then be re-approved prior to offering in 2008 (since extended to 2009).

Bridging/academic study skills

Developed as a response to the changing demographic of students, bridging and academic study skills programs and courses are now a feature of universities worldwide. While Unitec had no such courses or programs in 2006, the problems the institution faces in regard to first-year students are comparable with those noted in the international research literature.

The majority of research in the area of targeted courses for students in their first year in tertiary education comes from the United States, where such education initiatives are based on a varying range of programs and courses designed to assist first-year students in their transition to university. Some simply consist of a one-hour per week 'first-year' seminar aimed at introducing students to the complexities of university life and providing a 'home room'-type support class. Others, which may or may not be based around a theme, are organised as integrated learning communities, where a first-year seminar is usually just one of the three or four classes taken.

These programs and courses are concerned with preparing first-year students for the discipline they are intending to enter – firstly, by ensuring they have the appropriate level of necessary skills, and secondly, by supporting them to develop the academic literacy/concepts/theories pertaining to that discipline. Almost all are credit-bearing. In the United States, in Fall 2000, 76% of all degree-granting two- and four-year institutions offered at least one foundational reading, writing or mathematics course (Parsad & Lewis 2003, cited in National Science Board 2006).

Barrow noted in the 2004 *Success and Retention Report* for Unitec that:

Issues with maths and English language manifest themselves in retention and success figures for lower level courses

in programs. Together they illustrate under-preparedness for tertiary study in an English-speaking system in areas other than discipline knowledge and learning.

Across Unitec, academic staff have identified a problem with the low levels of foundational skills displayed by many students entering degree programs. The Project Cherub (Report of the Project Cherub 2004) data show that most program directors believe that a large proportion of the students who enter their programs are academically under-prepared. Table 1 categorises responses from a survey of program directors regarding the degree of English language and academic literacy difficulties faced by students on their programs.

Table 1: The nature of English language problems (from the Report of the Project Cherub 'Other Qualifications Group' 2004)

Language problems recognised by program directors

Language problem	Percentage of program directors who identified this as a problem
Reading	50
Listening	70
Accuracy/grammar	86
Vocabulary	63
Writing	86
Speaking	70

Extent of language problems

	A lot	Quite a lot	Some	A few	None
% EAL students	23	50	20	7	
% native speakers			56	34	10

Note: The questions that produced these results included mention of both English language and academic literacy problems, with the surveyed program directors noting that both the EAL and native speaker groups had language and/or academic literacy problems.

In many courses at Unitec, while a basic competency in mathematics is required for students to be able to achieve, mathematics is not often taught as a subject. In 2004, a consultant was employed to look at the development of a centre for mathematics and statistics at Unitec. The resulting report made a number of recommendations, including:

- 4.1 That consideration be given to broadening the pedagogical approaches used in all mathematics, statistics ... courses. (Begg 2004)

The Report on Bridging and Foundation Education at Unitec recommended the introduction of two new developments in bridging education at Unitec. The first of these involved each undergraduate degree program in designing and implementing an elective academic study skills course aimed at developing the knowledge and academic abilities recognised as necessary for first-year students to succeed in tertiary study. These courses were to be credit-bearing and integrated to provide contextualised, holistic support, specific to the first-year program in which they were situated.

The second recommended that schools develop integrated, cross-disciplinary, bridging programs aimed at establishing disciplinary confidence together with academic study and numeracy skills. Such programs, based on the learning community model (Tinto 1997, Prebble *et al.* 2004), would normally include one or two courses (depending on whether they were one- or two-semester programs) from the degree program into which the student was progressing. Students would obtain credits for these courses on progressing to degree study. The programs would be aimed at older students who may, for instance, already be in the workforce but are looking for a change of direction and lack the confidence to go directly into a degree program. Younger students, who have achieved reasonably well at school but do not have the necessary National Certificate of Educational Achievement credits to enter a particular discipline, may also be candidates for these programs. It is also possible that such programs could cater for EAL students by providing integrated

language support courses. In other words, these programs, while designed to develop discipline knowledge and academic and numeracy literacies, would also focus on meeting the needs of particular student groups.

Implementing the recommendations

As the instigator of the report, the School of Foundation Studies was recognised as the body with the knowledge and expertise to coordinate this development and re-development of courses and programs. Work began in what, on reflection, was a somewhat *ad hoc* fashion, based on working with any discipline that came to the school declaring interest in developing a course or program. It was soon evident that this mode of operation was quickly going to deplete the somewhat slim resources available – two people were working on this on top of their other work. A small committee was then set up to provide the first contact for interested parties and also to prioritise initiatives. As the workload grew – there are now 16 courses or programs taking part in the project – it became obvious that Unitec needed to fund another position. While there was no disagreement that the position was a priority, it was difficult to find the funding within the current budgetary climate. However, in April another staff member was appointed, which means the workload is, comparatively anyway, manageable.

Course and program development

Foundation programs

The CFS:W (level 3) is the main program in the School. A 60-credit program, it provides pathways to diplomas and degrees at Unitec, although in a few disciplines the pathway is to a level 4 certificate. Students undertake courses aimed at developing academic literacy and numeracy and, in some cases, introductory discipline knowledge.

The most popular pathway, which has been running in its present form for seven years, is into the Bachelor of Nursing degree. The four courses, with classes of approximately 22 students in each, comprise an integrated learning community. Two of these courses, Academic Study Skills and Sociology for Nursing, are developed and taught by the School of Foundation Studies and the other two, Introduction to Health Knowledge and Introduction to Health Science, are developed and taught by the School of Health Sciences. However, there is a theme running through the program and assignments are integrated throughout, so there is a great deal of inter-disciplinary communication taking place.

Community Skills and Early Childhood Education have similar pathways to their degree programs, although there is a lower level of course integration. Other programs rely on the levels of academic literacy, and/or mathematics and sciences, students have gained to gauge their readiness for study at degree or diploma level. However, there are no programs that provide guaranteed entry to students who gain the CFS:W.

Taking the Bachelor of Nursing model, the School has worked with four other programs this year to develop similar pathways. The School of Design, for instance, has developed a course that incorporates 36 credits for design with the CFS:W level 3, a 24-credit Academic Study Skills course. The Introduction to Design course has been developed by staff from the School of Design in consultation with staff from the School of Foundation Studies, including mathematics lecturers, so that it integrates a wide range of disciplinary and academic literacy content. As the School of Design has recently re-worked its degree structure, and eliminated its diploma program, the level 3 CFS:W will provide a pathway to the new level 4 certificate. There is provision, however, for a few high achieving students to bridge directly to the degree.

There are a variety of different initiatives also being developed to meet the needs of other programs. While the emphasis is on best meeting the needs of students, there also has to be an acknowledgement of the expertise each program has developed to meet the particular requirements of their discipline. It is hoped that, by working with each program to develop a pathway, they feel comfortable with the on-going reflective practice and development and it will continue as a two-way, inter-disciplinary process.

Bridging courses

Based on a very generic course outline, and adapted to meet the particular needs of their discipline and their students, a number of level 4 certificates are developing integrated academic study skills courses to add to their programs. These credit-bearing courses are being developed by the School of Foundation Studies and the program involved, with the aim of being taught by either a lecturer from the School or a combination of lecturers from the two schools.

A one-year program is in the development stages to bridge students to the Bachelor of Nursing. This program would incorporate the existing level 3 CFS:W certificate, which students would undertake in the first semester, with two courses from the Bachelor of Nursing (these will be credit-bearing and able to be transferred to the that degree) and additional pre-science and mathematics courses in the second semester. While the present course works well for some students, it is obvious that it does not provide sufficient grounding for others, who then struggle and drop out in the first year. It is hoped that the extra semester will provide a better range of foundational knowledge.

One school took up the challenge to provide a credit-bearing academic study skills course for its first-year students this semester. This was not an easy course to develop as the lecturers in the school did not want to be involved in delivering an integrated course, appearing to believe that the purpose of the course was to 'fix' student problems

without any input on their part. While it was originally going to be compulsory for all first-year students in the program, in the end only 15, mainly EAL students, were enrolled. To meet the particular needs of this program, the course was taught and developed by both a lecturer from the School of Language Studies and one from the School of Foundation Studies.

The students who took the course were highly enthusiastic in their evaluations and said they thought the course had made a real difference to their first-semester experience. They commented that they could not understand why it was not compulsory, as 70–80% of students in their other classes were also EAL students and they felt it would have benefited their study in those classes if more of these students were also undertaking the Academic Study Skills class.

However, work has begun with a several other degree programs and one of these, in a re-design of their degree program, is working with the School of Foundation Studies to integrate academic study skills into two of their first-semester courses. The agreement is that a School of Foundation Studies lecturer will work with the other lecturers on these courses, both on development and teaching. This is an interesting development and both schools have embraced the opportunity.

Staff development

While the School of Foundation Studies has the resources to work with other schools on developing and re-developing these courses and programs, it does not have the staff to undertake all of the teaching required and neither does it believe that all the teaching should be carried out by School lecturers. Planning for staff development has been linked to a Ministry of Education initiative ('Learning for living') to increase expertise in the teaching of literacy and numeracy and the integration of this knowledge into the teaching of content (Ministry of Education 2007). Workshops have been run at Unitec

involving both lecturers on the CFS:W program and those teaching on other foundation and bridging programs, particularly those whose programs are moving to include a bridging course such as Academic Study Skills.

Coordination with government strategy

The approval of the recommendations for development and re-development of foundation and bridging education strategies at Unitec has coincided with a push by the Tertiary Education Commission to prioritise foundation learning. The *Tertiary Education Strategy 2007–12* notes that foundation learning has begun to move 'from a relatively marginal position within the tertiary education system to being a core activity, underpinned by informed professional practice and improved diagnostic and teaching tools' (Ministry of Education 2006, cited in Ministry of Education 2007: 22). Indeed, two of the four priority outcomes for tertiary education for 2007–12 are tied to foundation learning:

... raising literacy, numeracy and language skills for the workforce ... is a priority ... increasing the number of New Zealanders achieving a qualification at level four and above before the age of 25 is a priority. (Ministry of Education, 2007: 22)

At the same time, starting in 2008, the Tertiary Education Commission is introducing a new funding model based on changed key performance indicators, some of which are related to each tertiary institution's commitment to and provision of foundation education, and the New Zealand Qualification Authority is rolling out a new quality assurance process for foundation programs. Work thus needs to take place in each institution to integrate these requirements, so that funding and quality assurance issues are demonstrably tied to staff development and measurable student gains. At Unitec, a committee has been formed to advise senior management and to

work with them to develop the best possible outcomes. If it is to meet its aim to raise literacy and numeracy levels to enable more people to enter tertiary study, the government has realised that foundation and bridging education is a basic necessity. The focus has thus moved from skills-based programs aimed at 'helping' people, to the provision of training and incentives to encourage institutions to develop 'staircasing' programs, where literacy, numeracy and academic study skills are integrated with discipline content.

Conclusion

While the reasoning behind a new strategy can find acceptance with a majority of those involved, the actual implementation of that strategy can be extremely complex – the implementation of the recommendations from the *Report on bridging and foundation education* at Unitec has been no exception. It became clear early on, for instance, that the timelines needed to be extended, as they were unrealistic if the development and re-development of new courses and programs was to be undertaken with sufficient consultation. On the other hand, it was always envisaged that this would not be a 'one hat fits all' strategy, but that each new initiative would be developed within the context of a particular course or program to meet the learning needs of the students involved, and this is happening – and in ways never envisaged. Indeed, it is gratifying to have program directors engaging in debate around these issues after years of resistance. While there is still a lack of understanding from many of those teaching at degree level in regard to the multiplicity of problems the new wave of students entering tertiary institutions bring with them, there are also those who now accept that their teaching needs to change to reflect this diversity. Changes to government funding for tertiary programs, involving the prioritisation of foundation learning initiatives, are also driving a push for new strategies at the institutional level.

In leading the challenge to incorporate foundation/bridging courses and programs into Unitec's existing academic structures, the School of Foundation Studies has been charged with a project that involves a fundamental change in the way Unitec supports students with foundation and bridging needs. While such a project has inherent frustrations, there is also a feeling of excitement as each new initiative begins development. The research shows that students are more likely to persist and succeed in institutions that provide opportunities for students and staff to connect in the learning process. The goal of this project is for the implementation of successful initiatives to lead to greater staff 'buy-in', and increased acknowledgment of the flow-on benefits that result from addressing the academic equity needs of students at the foundation/bridging level.

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